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Funding agricultural holdings' investment projects: Focus on subsidies

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Abstract

The aim of the article is to compare the effects of different fixed asset funding options for agricultural holdings. Funding investment projects with subsidies (measure 1.1.1 Modernisation of agricultural holdings – axis I of the Rural Development Programme), bank loans and leases are simulated and compared in terms of the share of funding costs relative to the total amount of money received. This share in most cases enables the farmer to unambiguously choose the fixed asset funding option. However, in the case of older farmers in more favourable areas, the decision is not clear, as the share is the same for three-year bank loans and leases with a three-year payback period.

Keywords

Agricultural holding, investment funding, modernisation, Rural Development Programme, subsidies.

JEL Classification: H81, Q14

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1. Introduction

Subsidies are one of the ways through which the company can fund its investment activities when its own resources are not sufficient. Tokila et al. (2008) define public business subsidies as *a form of financial support given by the state to private sector firms either directly or through intermediary organisations*.

Other financial instruments include bank loans or leases. All of these have their pros and cons. To prevent the situation where the outcomes of the investment project are different from that expected, this article aims to identify the facts that can lower the available amount of received financial support.

The importance of investment for economic growth is obvious. *[It] contributes greatly to ensuring a normal development of an economy [and is] the key factor in the development of production infrastructure and the material basis for all the socio-cultural activities undertaken, as well as a boost in the quality of life in any kind of economy* (Zirra, 2011). *Investments in agriculture represent the material support of social and economic development of rural space. Through them is ensured the fixed capital enhance, the increase of economic and technical efficiency of existent ones, the creation of new labor places and the raise of the labor productivity* (Timofti and Memeț, 2012).

The Czech lands were already a heavily industrialized and agricultural region back when they were still part of the Austro-Hungarian Empire and the level of concentration and mechanization of agricultural production in the Czech lands was among the highest in the Empire (Grešlová Kušková, 2013). However, during the era of communism, the situation changed. As Lerman et al. (2004) find, *[s]ocialized farms appear to have been undermechanized despite the persistent mechanization efforts in all socialist countries that resulted in large machinery parks in absolute numbers*. However, *there was a sharp mechanization gap between socialist and market economies in terms of the ratio of machinery to labor* (Lerman et al., 2004). The financial performance of agricultural holdings thus did not allow much investment into the replacement of assets.

After the revolution in 1989, Czech agriculture was undercapitalised. *At the outset of transition, there was a substantial need for restructuring – mainly a modification of firms' structures in terms of organizational form, size, and quality of inputs used – and a reallocation of resources towards more efficient uses, which triggered reforms such as privatization, institutional changes, and policy liberalization* (Bojnec and Latruffe, 2011). Agricultural holdings needed *to implement large investments to be able to expand their size and implement modern technology* (Bojnec and Latruffe, 2011).

Nowadays, the situation is still not positive. As stated in the Vision of Czech Agriculture document after 2010 (Ministry of Agriculture, 2010), there is still a problem of undercapitalisation and credit burden. The analysis of gross fixed capital formation, consumption of fixed capital and rate of investment burden performed by Řezbová et al. (2009) in the Czech Republic showed that *in the period 2000–2003 there was not even simple replacement of assets in the value of write-offs (consumption of fixed capital) in agriculture, and the situation was balanced only in 2004, in the period 2005–2008 the annual balance was positive*. Only since 2004 has agriculture begun a positive trend in investment activity. This increase was caused mainly by the usage of support programmes to encourage investment in agriculture that became available after the entrance of the Czech Republic into the European Union (EU).

Many authors are concerned about the impact of the EU's subsidies; however, few have studied the influence on microeconomic-level agricultural holdings. This article therefore simulates the effects of investment funding by subsidies in comparison with other possibilities. Firstly, the theoretical grounding for the funding of fixed assets is presented. Then, the approach towards the analysis is introduced. The following chapter sets the conditions for the consequent simulations, which are carried out in computational tables. The obtained results are discussed next. Finally, the conclusions are drawn in the last chapter.

2. Funding fixed assets: theoretical grounding

One of the important sources of financial means after the entrance into the EU is the European Agricultural Fund for Rural Development in the case of agriculture. The Common Agricultural Policy (CAP), an instrument for achieving set goals in agriculture, is divided into two pillars. While the first one includes direct aid and market measures as well as the payments to be claimed, the second pillar represents mostly project-based subsidies where it is not granted that the entrepreneur receives the subsidy. Currently, the Rural Development Programme (RDP) is valid in the Czech Republic. This is divided into four axes and technical support.

Within the programmes of axis I, companies can apply for investment support. Under the measure *I.1.1. Modernisation of farms,* it is possible to buy tangible fixed assets or to build, rebuild or reconstruct agricultural households, buildings, technologies and so on. The investment project must be submitted together with the application. The level of co-funding varies from 40% to 60%. Young farmers and farmers farming in less favourable areas (LFAs) can profit from a higher percentage. The amount of expenditure on which the subsidy per project is calculated varies from 100 thousand CZK to 30 million CZK (included). The maximum amount of subsidies per applicant is 90 mil. CZK in the period of 2007–2013 (Ministry of Agriculture, 2011). The contribution of the EU is 75% of public resources; the rest of the financial means comes from the Czech Republic's budget.

The projects under measure *I.1.1.1 Modernisation of agricultural holdings* include construction and technologies for either livestock production or crop production. Other eligible costs consist of expenditure on technical and project documentation, VAT (if the farm is not a VAT-registered company) and, in specific cases, the purchase of the building, too.

2.1 Ways of funding fixed assets

There are generally three types of methods for how the fixed assets of agricultural holdings can be funded: subsidies, bank loans and leases.

The sources of input subsidies are diverse. Different levels of government (central, state, and local) can provide direct financial support to input industries, parastatal and private input traders, and farmers. The government can also design policies that subsidize inputs indirectly, such as those related to trade and marketing. Subsidies can be disaggregated further into those for fertilizer, credit, irrigation, and power (Fan and Gulati, 2007). According to the purpose, we distinguish two types of subsidies: operational and investment. They have different impacts on the functioning of the company.

Bojnec and Latruffe's (2011) analysis of *the financial determinants of investment decisions made by Slovenian family farms during the transition to a market economy in the period 1994–2003* showed the *non-significant impact of investment subsidies received by farms, but a positive impact of operational subsidies for small farms only, on the alleviation of financial constraints* (Bojnec and Latruffe, 2011). Concerning the Czech situation, according to Rosochatecká (2005), the investment subsidies from the operational programme Rural Development and Multifunctional Agriculture have had a *positive impact on agricultural holdings*. In addition, the *[n]on-investment supports in the framework of Horizontal Rural Development Programmed in the form of LFA payments (support of less favorable areas and areas with environmental constraints) and agrienvironmental measures in the total amount of 4.03 mld. CZK positively influenced financial stability of entrepreneurships in less favorable production conditions* (Rosochatecká, 2005).

According to Danielova and Sarkar (2011), *most firms use debt funding in real life.* Projects are usually partly funded with equity and partly with debt. The obvious disadvantage of loan funding is the reward required in the form of interest and in the case of financial leases in the form of lease coefficients. (Operating leases are not taken into account in the article as the company is not becoming the owner of the object of the lease. This type of lease is also not eligible for a subsidy.) In general, it is administratively more demanding to receive a loan than a lease. Loans for farmers are usually more expensive than those for other companies due to the higher risks in agriculture than in industry. Among the advantages of loan capital usage when funding fixed assets is that debt funding enables tax leverage. It is possible to deduct loan interest from the costs. The tax base is therefore lower compared with the same tax liability. On the other hand, in the case of financial leases, the company becomes the owner of the fixed assets only after it pays off all the lease instalments and therefore cannot apply write-offs. It is not possible to subtract the interest from the costs, only the lease instalments.

In comparison with other types of fixed asset funding (loans or leases), subsidies have specific advantages. The first benefit is that they are usually provided in irretrievable form. The entrepreneur is not obliged to pay regular payments, which would burden his or her cash flow. However, obtaining a subsidy for tangible fixed assets has the indirect effect of increasing income tax. It causes the reduction in the acquisition price of the assets for write-off. A lower amount of write-off as a cost item increases the tax obligation.

Subsidies projects are in most cases mandatorily pre-funded, i.e. the receiver has to firstly cover all expenditure and the eligible costs are repaid afterwards. The investment project also has to be co-funded by the company to prevent the crowding-out effect of public finances devoted to investment projects. They should only complement the private resources. *In the worst case, investment assistance entirely substitutes for private funds and generates no increase in the scale of investment and thus implies an arbitrary transfer of resources from tax payer to producer* (Wren 1996 in Tokila et al., 2008).

The need to pre-fund project expenses exposes the farm to the risky situation that the expenditure will not be repaid for various reasons on both sides. For example, this could include the company's inability to fulfil the project criteria or incapability of the public administration to pay the support. On the farm's side, there could be deficiencies in the registration of all documents in accounting, activation of the documents and lack of control in high risk actions (Simionescu et al., 2009). From the position of the public administration, there is a danger of legislative changes. However, this is minimised by the fact that the programming period in the EU is seven years and that new programmes are usually linked to previous ones. Simionescu et al. (2009) identify three major risks related to projects with European funding: (1) *the risk of lacking the technical capacity to elaborate eligible projects;* (2) *the risk of lacking co-financing funds;* (3) *the risk of lacking institutional capacity to step through the entire path from the moment of submitting the project until accomplishing the implementation respecting the terms imposed by the European Union.*

Some firms can suffer from a lack of access to the private finances needed to pre-fund or co-fund projects. Tokila et al. (2008) suggest that this may occur due to the *failure of information, public goods, incomplete markets, externalities, competition and macroeconomic disturbances*. The possibility of gaining investment finances also depends on the features of the company – on its size, age and location – and on the characteristics of the particular project that the firm desires to implement. *The better the firm's investment-bearing capacity is, the less likely the firm is to need public assistance; for example, it is likely to be able to manage the risks involved in the investment project better and to have access to private funds* (Tokila et al., 2008). The firm's investment-bearing capacity is positively related to the size of the firm and negatively to the size of the project.

Many applicants find it difficult to prepare the application for a subsidy or write it correctly because of the deficiencies in organising procedures, a lack of precise responsibilities, insufficient human resources or old/unsatisfactory documentation. Therefore, some firms need the assistance of an advisory company, which raises transaction costs and lowers the total benefit of the subsidy. The supported investments are also the subject of controls from the responsible bodies and, if deficiencies are found, the funds do not have to be granted in full or can be withdrawn.

There is also moral risk related to the usage of subsidies. The fact that the company does not fund the projects exclusively by its own equity can lead to riskier behaviour. There is also the increased possibility that projects with higher risk (which may result to financial losses for the company) will be implemented and will not be successful or that unnecessary investments will be made.

2.2 The impact of investment subsidies

Usually, the impacts of subsidy measures devoted to funding investments on economic indicators are analysed. For example, Lahiri (2012) assesses the impact of the provision of an investment subsidy on the output and employment levels in industrial and agricultural sectors in India. The impact of investment subsidies on overall welfare is evaluated by Gravelle (2010): *[M]odelling the effect of investment subsidies, whether granted via rate reductions or investment subsidies, suggests that little gain in long-run welfare can be expected*.

One of the fields of study is the deadweight of the projects, as some of them might not have been implemented if they were not funded from the EU's funds. Deadweight is *the degree to which projects would have been carried out without grant assistance* (Tokila et al., 2008). Tokila et al. (2008) perform the ex-ante analysis of the deadweight of investment projects in Finland. Their paper assesses the profile of subsidised zero deadweight investment projects – projects that would be abandoned without public subsidies and finds that there is *a higher degree of deadweight for bigger companies, as they are likely to have access to other sources of funding such as bank loans and requited forms of public support* (European Commission, 1997).

Another area of research is the evaluation of the impact directly on the receiving firm. The influence of subsidies on the cash flow of the firm is studied by Pšenčík et al. (2010). According to their methodology, it is possible to analyse the impact of receiving the support on the firm's cash flow when that flow is seen as the opposite of the flow from the subsidy provider.

Zirra et al. (2011) study the impact of subsidised projects on company sales. They prove, by using an econometric model, that there is a positive and statistically significant association between the farms' gross investment decisions and growth in real sales. The

findings of Bojnec and Latruffe (2011) show that *providing cash subsidies to firms or farms may help to enhance investment, particularly during an economic and financial crisis or necessary restructuring for emerging market economies*.

According to Kula et al. (2011), *each company should take into account all possible impacts of a subsidized project. Contrary to that, some possible impacts are not evident or clear.* To prevent the situation where the outcomes of the investment project are different from those expected, this article aims to identify the facts that can lower the actual amount of the received subsidy. The investment decision making of the agricultural holding is considered. The simulation of three ways of investment funding is performed and pursuant to the analysis, the conclusion of the most appropriate funding method is made.

3. Methodology

The paper shows the effect of a subsidised project on the performance of an agricultural holding if its investment activities are funded within the measure of axis I of the RDP implemented in the Czech Republic in the frame of the CAP of the EU in the period of 2007–2013. We select a measure of restructuring and developing physical capital and innovation support, particularly on the priority *I.1 Modernisation, innovation and quality*, measures of the *I.1.1 Modernisation of agricultural holdings* and sub-measures of the *I.1.1.1 Modernisation of agricultural holdings*.

Funding costs by using subsidies (the share of funding the costs of the investment project by using subsidies relative to the total granted subsidies) are compared with the costs of other ways of funding tangible assets. The aim is to assess the best way of purchasing investments in the agricultural holdings sector. The indicator calculated is the share of funding costs relative to the total value of the project. The table created in MS Excel enables us to change particular variables and simulate different situations (the value of the project, the height of the subsidy, the type of beneficiary etc.).

The official documents issued by the Ministry of Agriculture and State's agricultural interventional funds (SAIF) and the implementation manual are used to simulate the situation realistically. The data are obtained from the ARAD database of the Czech national bank and from the SAIF webpages, where the lists of accepted application for subsidies are published.

4. Analysis and results

The impact of the project funded from the EU's fund under the measure *I.1.1.1 Modernisation of the farms* is examined. In the framework of this measure, it was possible to submit applications in five rounds of calls: first, third, sixth, ninth and thirteenth. An application for a subsidy is submitted to the SAIF, which then gathers applications, gives points to them, recommends them to realisation and publishes the results on its website. The selection criteria and points that they are awarded are publically accessible. From the amount of points that each project gained, however, it is not possible to assess project quality, as it does not include indicators of the firm's financial situation.

4.1 Funding by subsidies

The value of one project varied from 38 669 CZK to 18 mil. CZK during all rounds of calls for applications. Most projects were realised under measure a): construction and technologies for livestock production. An average project in livestock production (measure a)) was more expensive (2.934 mil. CZK) than an average project in crop production (measure b)), where it was only 2.54 mil. CZK. Therefore, for the simulation, I take a project worth 2.7 mil. CZK.

The majority of projects among all rounds focused on building, constructions and reconstructions, rebuilding, repairs and renewals. The construction of new buildings was the aim in fewer projects. However, in the last round, under the measure focused on crop production, it was the highest. The replacement of or change to technologies followed. The minority of projects concentrated on completion, extension and expansion. I took the most common project and considered the constructing of the building in the simulation.

According to the farmer and land category, there are four levels of co-funding from the EU's fund. In the first case, I analysed the situation of other farmers not farming in LFAs. Therefore, the amount of the subsidy was 1.08 mil. CZK (40% of the costs of the project). The purchase of a fixed asset that belongs to the third write-off group (with a write-off period of 10 years) is considered.

4.2 Lost tax lowering thanks to write-off

Accepting an investment subsidy for the purchase of tangible or intangible fixed assets lowers the value of the amount of the subsidy given for the purchase of the assets. Eligible investment expenditure for subsidies must be tangible and intangible property, defined according the 26 and 32 a) Act No. 586/1992, about income taxes. This includes separate movable things whose entrance price is higher than 40 thousand CZK and function for longer than one year, buildings,

constructions, permanent ground cover and projects and programme equipment with an entrance price higher than 60 thousand CZK (utilisation longer than one year).

The entrance value for write-off is therefore only 1.62 mil. CZK. The opportunity costs consist of the tax lowering, which could have been achieved if the project was not subsidised. Lost tax lowering is discounted according to the years of the usage of the investment (205 200 CZK in this case). As a discount rate, the two-week REPO rate or the firm's own designed rate can be used. Another possibility is to calculate the geometrical average of the five-year state bond interest during a specific time period (2.09% for the first half of 2012). In this case, total opportunity costs amounted to 165 400 CZK.

4.3 Loan for pre-funding

The agricultural holding needs to co-fund the project; therefore, I suppose that it already had equity for funding part of the project. However, the subsidised project also has to be pre-funded. In order to do so, the firm takes out a loan with an interest rate that is calculated as the geometric mean of the interest rates of the loans granted to non-financial companies (4.84% for the period of January to June 2012). The required amount could be borrowed once or twice. In the first case, the interest would be 52 290 CZK and the tax saving 9 930 CZK, while in the second case the interest would be only 39 220 CZK and tax saving 7 540 CZK. The net costs of the loan are then 42 350 CZK and 31 760 CZK, respectively.

4.4 Administration costs

Other expenditure that the firm must take into account includes the administration costs for submitting the application and for a tender in the appropriate cases. The preparation of the application for the subsidy and the realisation of the project can be done either by the agricultural holding itself or by the consulting agency. The latter minimises the risk of the loss of subsidies in the case of administrative deficiencies (there are stricter requirements for the documentation and monitoring of projects when they are funded from public resources). Research on companies providing consulting services in the area of subsidy applications shows that the preparation of the application starts on 14 000 CZK without VAT depending on the total value of project. The monitoring during building, participation on the control days and so on costs around 16 000 CZK and finalising the project including the final report costs from 11 000 CZK more.

If the expected value of the contract is over 500 000 CZK (excluding VAT), the applicant/beneficiary must hold the appropriately documented tender. Selected suppliers have to come from at least three received offers. According to Kula et al. (2011), the costs of a tender can be around 100 000 CZK. In the case of sublimit open tenders or simplified tenders, the costs are lower; according to the expert estimate, these are between 35 000 CZK and 75 000 CZK without VAT (tender documentation included). In the case of small-scale public tenders, the costs could be around 15 000 CZK without VAT. Because the sample projects amount to 2.7 mil. CZK, the higher price for tender administration (70 000 CZK without VAT) is taken into account.

The expenditure for application submission and tender administration is spent in preparatory year –1, the project monitoring expenditure during year 0 and the finalising expenditure at the end of year 0. The repayment of the eligible costs is set at the beginning of year 1; therefore, the costs include the accrual of interest. (If the farm did not incur administrative costs, it could have paid the money into the bank and gained interest.) The application and tender expenditure is compound interested for two years, monitoring costs for 0.5 year and finalising costs do not change as they are spent at the beginning of year 1, when the project starts to function.

4.5 Results of the simulation

To recalculate the project, all calculations were carried out in MS Excel using a form (see appendix – Table 1). The grey cells mark the variables that can be changed and the whole example is recalculated automatically afterwards.

Table 1 Projects funded with subsidies in the case of older farmers farming in non-LFAs (mil. CZK)

Total cost of the project	2 700	
Amount of subsidy	1 080	
Years of write-off	10	
Lost tax lowering after discount	165.40	
Net costs of the loan	42.35	31.76
Administrative costs	115.76	
Additional costs of the subsidy	323.52	312.93
Share of the additional costs relative to total project costs	11.98%	11.59%
Adjusted amount of subsidy	756.48	767.07
Share of the additional costs relative to the amount of subsidy	29.96%	28.97%

The total amount of granted subsidy is lowered by the amount of additional costs related to the fact that the project was funded by a subsidy. The total additional costs could reach 323 520 CZK if the loan for refunding was taken at once. If it was taken in two parts, the additional costs would be 312 930 CZK. The subsidy was instead of 1 080 000 CZK only 756 480 CZK or 767 070 CZK, respectively. The share of

additional costs relative to total project costs is 11.98% (11.59%), which is a relatively high amount of *lost finances*. These additional costs represent almost 30% of the subsidies. The summary of the example can be found in Table 1.

4.6 Other simulations

The simulated example was recalculated for the situation of young farmers farming in LFAs. In this case, a higher amount of support is received (60% of project costs). This time, the subsidy is 1.62 mil CZK. All other conditions remain the same. Because the amount of received support is higher, the ratio of additional costs to the subsidies increases. The share of the additional costs relative to total project costs is around 15%. This is 3.85 percentage points (p. ps) higher (when the loan is taken at once) or 3.65 p. ps higher (when the loan is taken in two parts) than in the case of older farmers in non-LFAs. The results of the project are presented in Table 2.

Table 2 Projects funded with subsidies in the case of young farmers farming in LFAs (mil. CZK)

Total cost of the project	2 700	
Amount of subsidy	1 620	
Years of write-off	10	
Lost tax lowering after discount	248.10	
Net costs of the loan	63.53	47.65
Administrative costs	115.76	
Additional costs of the subsidy	427.39	411.51
Share of the additional costs relative to total project costs	15.83 %	15.24 %
Adjusted amount of subsidy	1 192.61	1 208.49
Share of the additional costs relative to the amount of subsidy	26.38 %	25.40 %

It was expected that a higher subsidy would increase the opportunity costs (lost tax lowering). The farmer is somehow *punished* for the fact that he or she receives a higher percentage of subsidy in the form of higher costs related to the administration of the financial support. On the other hand, it is obvious that the share of the additional costs relative to the amount of subsidy will be lower – by 3.57 p. ps in this case. This is disproportionate: when the costs rise by 3.85 p. ps, the share decreases only by 3.57 p. ps.

If the farmer is either young in non-LFAs or older in LFAs, he or she receives a 50% subsidy. The results are in the middle of the previous extreme categories of farmers as can be seen in Table 3.

Table 3 Projects funded with subsidies in the case of young farmers farming in non-LFAs or older farmers farming in LFAs (mil. CZK)

Total cost of the project	2 700	
Amount of subsidy	1 350	
Years of write-off	10	
Lost tax lowering after discount	206.75	
Net costs of the loan	52.94	39.71
Administrative costs	115.76	
Additional costs of the subsidy	375.45	362.22
Share of the additional costs relative to total project costs	13.91 %	13.42 %
Adjusted amount of subsidy	974.55	987.78
Share of the additional costs relative to the amount of subsidy	27.81 %	26.83 %

4.7 Funding by bank loans

If the same project was funded only by a bank loan at the same interest rate as in previous calculations (4.84%), the farmer would have to pay back 2.7 mil. CZK increasing by interest. The share of loan costs relative to the total price of the investment is comparable with the subsidised project only if the loan is repaid within three to four years. Otherwise, the costs would be significantly higher. If the loan is paid back after one year, the share of the interests on the amount borrowed is only 3.92%, but with a three-year payback period, the share is already 12.34% and for a 10-year loan, it reaches almost 50%. The results are displayed in Table 4.

Table 4 The costs of the loan in relation to the borrowed amount (the price of the project)

Duration	Interests	Tax save	Net costs of the loan	Share
1 year	130.72	24.84	105.88	3.92 %
3 years	411.45	78.17	333.27	12.34 %
4 years	562.08	106.80	455.29	16.86 %
5 years	720.01	136.80	583.21	21.60 %
7 years	1 059.18	201.24	857.94	31.78 %
10 years	1 632.04	310.09	1 321.95	48.96 %

4.8 Funding by leases

Considering the lease to be a fixed asset funding option, I simulated the situation with a downpayment of 30% (810 000 CZK) and an effective interest rate of 10%. The lease payments are therefore 60 985 CZK. The share of the costs for the lease relative to the borrowed amount would be 11.31% when the lease is paid back in three years. Compared with the subsidies and three-year bank loan option, the share is the lowest. However, if the payback period is four years, the share increases to 15.22%. This is

higher than in the case of the subsidies (with the exception of young farmers in LFAs), but still lower than in the four-year bank loan option.

5. Discussion

The performed simulations show that according to our expectations, the share of costs relative to total project costs is the highest in the case of long-term bank loans. However, surprisingly, the three- and four-year bank loan option is more costly than the lease with a similar payback period. The share of additional costs relative to total project costs in the case of subsidy funding is also contrary to our assumptions. If the farmer is young and is farming in LFAs, he or she is supported by a higher percentage of subsidy. Paradoxically, the additional costs spent due to receiving the subsidy are higher than in the case of older farmers in non-LFAs by almost 2 p. ps. These additional costs consist of opportunity and administrative costs. Therefore, the higher is the amount of the subsidy, the higher is the share of these costs related to obtaining the subsidy relative to total project costs, which is in contrast to the original idea of supporting more *disadvantaged* farmers.

The share of the costs of the investment approach relative to total project costs is comparable when subsidies are obtained by older farmers in non-LFAs (11.98%), when the loan is repaid in three years (12.34%) and when the lease payback period is three years, too (11.31%). In this case, the decision on the funding method based on the *costs of the total value of the project* criterion is not clear. Otherwise, young farmers in LFAs or non-LFAs, or older farmers in LFAs, would rather choose three-year bank loans or leases with a three-year payback period than subsidies.

6. Conclusion

The aim of the article was to simulate an investment project's funding options to compare funding by subsidies from the RDP measure *I.1.1.1 Modernisation of the farms* to bank loans or leases. The results clearly point to the fact that the subsidy funding option is not without costs and that the actual amount of available finance is significantly lower. Contrary to expectations, the agricultural holding is somehow *punished* for receiving a higher percentage of subsidy in the form of higher costs related to the administration of the financial support. In specific cases, the bank loan or lease also had a lower share of costs relative to total project costs. It can be concluded that subsidies are not always the best fixed asset funding option and that agricultural holdings should always calculate all opportunity costs before the final decision is made.

The analysis does not take into account exceptional events such as additional costs due to a project delay, changes in the project and deficiencies in monitoring or administration, which would result in a reduction in subsidies. The challenge for further research is to verify the simulations empirically, i.e. to calculate the real percentage share of the amount of subsidies relative to total costs related to the subsidy or the total value of a project on the sample of agricultural holdings in order to assess the real economic costs of the subsidised projects.

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Appendix

Table 1 Form for the simulation of the subsidy's effect

Basic data about the project

Project price (mil.)	Type of subsidy	Amount of subsidy	From the EU	From the CR
2 700	4	1080	810	270

1 – Young farmer in LFA
2 – Other farmer in LFA
3 – Young farmer out of LFA
4 – Other farmer out of LFA

Timeline of the project

Year –1	Year 0	Year 1	Year 2 …… *n*
Preparation	Investment. building. completing	Start of usage	Usage of the investment

Year of usage of the investment

10

Write-offs

Entrance value	1 620		
Write-off category	3	Years of write-off	10
Write-off rate: 1 year	5.5	Other years	10.5
Discount rate	2.09 %		
Income tax rate	19 %		

Opportunity costs

	Write-offs	Lost tax lowering	Lost tax lowering after discount
1st year	59.40	11.29	11.05
Other years	1020.60	193.91	154.35
Sum	*1080.00*	*205.20*	*165.40*

Pre-funding

Subsidy re-payment beginning of the year 1

All project pre-funded	1080	
Pre-funding of 1/2	540	Beginning of the year 0
Pre-funding of 2/2	540	1/2 of the year 0

Loan

			Interests	Tax save
Interest rate	4.84 %			
Borrowed amount	1080	for 360 days	52.29	9.93
	or			
	540	for 360 days	26.14	
	540	for 180 days	13.07	
			39.22	7.45
	42.35			
Net costs of the loan (interests – tax save)	or			
	31.76			

Administrative costs

		Adjusted costs
Application submission	15.00	15.63
Tender administration	70.00	72.96
Project monitoring	16.00	16.17
Project finalizing	11.00	11.00
		115.76

Summary of the project

Total costs of the project	2 700	
Amount of subsidy	1080	
Years of write-off	10	
Lost tax lowering after discount	165.40	
Net costs of the loan	42.35	31,76
Administrative costs	115.76	
Additional costs of the subsidy	323.52	312.93
Share of the aditional costs on the total project costs	11.98 %	11.59 %
Adjusted amount of subsidy	756.48	767.07
Share of the additional costs on the amount of subsidy	29.96 %	28.97 %

Auxiliary table

Write-off category	Write-off rate	
	1st year	other years
1 – 3 years	20	40
2 – 5 years	11	22.25
3 – 10 years	5.5	10.5
4 – 20 years	2.15	5.15
5 – 30 years	1.4	3.4
6 – 50 years	1.02	2.02